Remarks

By this amendment, claims 1, 16, 22-24, 30 and 39 have been amended. Claims 1-39 remain pending. Support for the instant amendments is provided throughout the as-filed application. Thus, no new matter is believed to have been added. In view of the following comments, allowance of all the claims pending in the application is respectfully requested.

Claims 1-8, 10-12, 14, 15, 24-31, 33-35, 37 and 38 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Japanese Patent Application Publication No. JP 11-040657A to Sato et al. ("Sato") in view of U.S. Patent No. 5,119,205 to Lemelson ("Lemelson"). Applicant traverses.

Claim 1

Applicant submits that the cited portions of Sato and Lemelson do not appear to at least disclose or teach a lithographic apparatus wherein, *inter alia,* the support is associated with a clamping device which is arranged to subject a second side of the patterning device to at least one second force, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, as recited in claim 1.

Applicant submits, as apparently acknowledged in the Office Action, that the cited portions of Sato fail to disclose or teach a clamping device arranged to subject a second side of the patterning device to at least one second force, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device.

Even assuming *arguendo* that the cited portions of Sato and Lemelson are properly combinable (which Applicant does not concede), the cited portions of Lemelson do not appear to address all of the deficiencies of the cited portions of Sato. In particular, the cited portions of Lemelson do not appear to disclose or teach, *inter alia*, the support is associated with a clamping device which is arranged to subject a second side of the patterning device to at least one second force, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, as recited in claim 1.

First, the cited portions of Lemelson provide no disclosure or teaching regarding or relating to a lithographic apparatus, let alone provide no disclosure or teaching regarding a particular arrangement of a clamping device of a patterning device support. For example, there is nothing in the cited portions of Lemelson about subjecting a first side of a patterning device to a particular force, or about subjecting a second side of the patterning device to a particular force. The cited portions of Lemelson appear to be about scanning of a work using machine vision. Accordingly, a person of ordinary skill in the art would not have consider the cited portions of Lemelson and moreover, not have gained any relevant insight or teaching. For example, there appears to be no reference in Lemelson at all to a lithographic apparatus, a patterning device as claimed, or subjecting any object to the particular forces recited.

Further, even if *arguendo* a person of ordinary skill in the art would have considered the cited portions of Lemelson, Applicant submits that the cited portions of Lemelson are devoid of any teaching regarding dynamically varying a force in an automatic fashion depending on a magnitude of motion of the patterning device. Cited col. 53, lines 20-25 of Lemelson appear merely to refer to a "work [that] is held stationary by an automatic clamping

fixture." However, there is nothing in those cited portions of Lemelson about force, about variation of force, or about dynamically varying force in an automatic fashion depending on a magnitude of motion. At most, the cited portions of Lemelson appear to disclose automatically clamping an object when otherwise the object wasn't clamped. But, respectfully, that doesn't teach one of ordinary skill in the art to dynamically vary a force in an automatic fashion depending on a magnitude of motion.

Further, Applicant respectfully submits that *In re Venner*, 262 F.2d 91, 95, 120 U.S.P.Q. 192, 195 (C.C.P.A. 1958) is inapplicable to the circumstances here. In *In re Venner*, the Court stated that "it is well settled that it is not 'invention' to broadly provide a mechanical or automatic means to replace a manual activity which has accomplished the same result." Id. at 194. Such is not applicable here – both because the same result could not have been achieved in the relied upon art, and because the claim does not merely broadly recite automating an activity that was manually done before.

Sato describes that motor 66 rotates cam 67 to cause press implement 71 to clamp reticle 3. Thus, motor 66 appears merely to move implement 71 between an engaged position and a non-engaged position. Further, Sato describes that screw cap 73 adjusts the spring power of spring 72, thereby adjusting the reticle thrust by press implement 71. See Sato, paragraphs [0012]-[0014]. So, it appears that press implement 71 provides a fixed force, which can be adjusted by hand from time to time using screw cap 73. Thus, the result in Sato is a constant force for any number of different accelerations or speeds. In contrast, the claimed invention achieves a different result - a dynamic force that depends on the magnitude of motion.

Further, Sato appears to disclose that spring 72 applies a fixed spring compression force which can be adjusted by hand to a different fixed spring compression force. Therefore, automation of such adjustment to achieve the same result would be merely replacement of hand adjustment with a

mechanical or automatic means to adjust the fixed spring compression force to a different fixed spring compression force. However, the cited portions of Sato do not appear to disclose or teach dynamic variation of a force during motion of the patterning device depending on a magnitude of motion of the patterning device. Thus, the cited portions of Sato did not disclose subject matter manually implemented before that somehow can now be automated. Automation of what Sato did before does not result in the claimed invention.

Claim 24

Applicant submits that the cited portions of Sato and Lemelson do not appear to at least disclose or teach a device manufacturing method comprising, *inter alia*, subjecting a second side of the patterning device to at least one second force normal to the direction of the acceleration of the support, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, as recited in claim 24.

Applicant submits, as acknowledged in the Office Action, that the cited portions of Sato fail to disclose or teach subjecting a second side of the patterning device to at least one second force normal to the direction of the acceleration of the support, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device.

Even assuming *arguendo* that the cited portions of Sato and Lemelson are properly combinable (which Applicant does not concede), the cited portions of Lemelson do not appear to address all of the deficiencies of the cited portions of Sato. In particular, the cited portions of Lemelson do not appear to disclose or teach, *inter alia*, subjecting a second side of the

patterning device to at least one second force normal to the direction of the acceleration of the support, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, as recited in claim 24.

First, the cited portions of Lemelson provide no disclosure or teaching regarding or relating transferring a pattern from a patterning device onto a substrate, let alone provide no disclosure or teaching regarding a particular clamping arrangement for a patterning device support. For example, there is nothing in the cited portions of Lemelson about subjecting a first side of a patterning device to a particular force, or about subjecting a second side of the patterning device to a particular force. The cited portions of Lemelson appear to be about scanning of a work using machine vision. Accordingly, a person of ordinary skill in the art would not have consider the cited portions of Lemelson and moreover, not have gained any relevant insight or teaching. For example, there appears to be no reference in Lemelson at all to transfer of a pattern onto a substrate, a patterning device as claimed, or subjecting any object to the particular forces recited.

Further, even if *arguendo* a person of ordinary skill in the art would have considered the cited portions of Lemelson, Applicant submits that the cited portions of Lemelson are devoid of any teaching regarding a force being dynamic in an automatic fashion depending on a magnitude of motion of the patterning device. Cited col. 53, lines 20-25 of Lemelson appear merely to refer to a "work [that] is held stationary by an automatic clamping fixture." However, there is nothing in those cited portions of Lemelson about force, about a force being dynamic, or about a force being dynamic in an automatic fashion depending on a magnitude of motion. At most, the cited portions of Lemelson appear to disclose automatically clamping an object when otherwise the object wasn't clamped. But, respectfully, that doesn't

teach one of ordinary skill in the art a force being dynamic in an automatic fashion depending on a magnitude of motion.

Further, Applicant respectfully submits that *In re Venner*, 262 F.2d 91, 95, 120 U.S.P.Q. 192, 195 (C.C.P.A. 1958) is inapplicable to the circumstances here. In *In re Venner*, the Court stated that "it is well settled that it is not 'invention' to broadly provide a mechanical or automatic means to replace a manual activity which has accomplished the same result." Id. at 194. Such is not applicable here – both because the same result could not have been achieved in the relied upon art, and because the claim does not merely broadly recite automating an activity that was manually done before.

Sato describes that motor 66 rotates cam 67 to cause press implement 71 to clamp reticle 3. Thus, motor 66 appears merely to move implement 71 between an engaged position and a non-engaged position. Further, Sato describes that screw cap 73 adjusts the spring power of spring 72, thereby adjusting the reticle thrust by press implement 71. See Sato, paragraphs [0012]-[0014]. So, it appears that press implement 71 provides a fixed force, which can be adjusted by hand from time to time using screw cap 73. Thus, the result in Sato is a constant force for any number of different accelerations or speeds. In contrast, the claimed invention achieves a different result - a dynamic force that depends on the magnitude of motion.

Further, Sato appears to disclose that spring 72 applies a fixed spring compression force which can be adjusted by hand to a different fixed spring compression force. Therefore, automation of such adjustment to achieve the same result would be merely replacement of hand adjustment with a mechanical or automatic means to adjust the fixed spring compression force to a different fixed spring compression force. However, the cited portions of Sato do not appear to disclose or teach dynamic force during motion of the patterning device depending on a magnitude of motion of the patterning device. Thus, the cited portions of Sato did not disclose subject matter

manually implemented before that somehow can now be automated. Automation of what Sato did before does not result in the claimed invention.

For at least these reasons, the rejection of claims 1 and 24 should be withdrawn. Claims 2-8, 10-12, 14-15, 25-31, 33-35, 37-38 depend from claims 1 and 24 and therefore are allowable over the cited portions of Sato and Lemelson for the reasons noted above with respect to claims 1 and 24 respectively, as well as for the features they recite individually.

Claims 12, 14, 15, 35, 37 and 38 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Sato and Lemelson further in view of U.S. Patent Application Publication No. 2003/0197841 to Araki et al. ("Araki"). Applicant traverses.

Claims 12, 14, 15, 35, 37 and 38 depend from claims 1 and 24 respectively and therefore are allowable over the cited portions of Sato and Lemelson for the reasons noted above with respect to claims 1 and 24 respectively, as well as for the features they recite individually.

Even assuming *arguendo* that the cited portions of Sato, Lemelson and Araki are properly combinable (which Applicant does not concede), the cited portions of Araki do not appear to address all of the deficiencies of the cited portions of Sato and Lemelson. For example, the cited portions of Araki do not appear to disclose or teach, *inter alia*, the support is associated with a clamping device which is arranged to subject a second side of the patterning device to at least one second force, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, as recited in claims 12, 14 and 15, nor disclose or teach, *inter alia*, subjecting a second side of the patterning device to at least one second force normal to the direction of the acceleration of the

support, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, as recited in claims 35, 37 and 38.

For at least these reasons, the rejection of claims 12, 14, 15, 35, 37 and 38 should be withdrawn.

Claims 13 and 36 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Sato and Lemelson further in view of U.S. Patent No. 4,795,518 to Meinel ("Meinel"). Applicant traverses.

Claims 13 and 36 depends from claims 1 and 24 respectively and therefore are allowable over the cited portions of Sato and Lemelson for the reasons noted above with respect to claims 1 and 24 respectively, as well as for the features they recite individually.

Even assuming *arguendo* that the cited portions of Sato, Lemelson and Meinel are properly combinable (which Applicant does not concede), the cited portions of Meinel do not appear to address all of the deficiencies of the cited portions of Sato and Lemelson. For example, the cited portions of Meinel do not appear to appear to disclose or teach, *inter alia*, the support is associated with a clamping device which is arranged to subject a second side of the patterning device to at least one second force, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, as recited in claim 13, nor disclose or teach, *inter alia*, subjecting a second side of the patterning device to at least one second force normal to the direction of the acceleration of the support, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic

fashion depending on a magnitude of motion of the patterning device, as recited in claim 36.

For at least these reasons, the rejection of claims 13 and 36 should be withdrawn.

Claims 7, 9, and 32 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Sato and Lemelson further in view of U.S. Patent No. 5,847,813 to Hirayanagi ("Hirayanagi"). Applicant traverses.

Claims 7, 9, and 32 depend from claims 1 and 24 respectively and therefore are allowable over the cited portions of Sato and Lemelson for the reasons noted above with respect to claims 1 and 24 respectively, as well as for the features they recite individually.

Even assuming *arguendo* that the cited portions of Sato, Lemelson and Hirayanagi are properly combinable (which Applicant does not concede), the cited portions of Hirayanagi do not appear to address all of the deficiencies of the cited portions of Sato and Lemelson. For example, the cited portions of Hirayanagi do not appear to disclose or teach, *inter alia*, the support is associated with a clamping device which is arranged to subject a second side of the patterning device to at least one second force, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, as recited in claims 7 and 9, nor disclose or teach, *inter alia*, subjecting a second side of the patterning device to at least one second force normal to the direction of the acceleration of the support, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, as recited in claims 32.

For at least these reasons, the rejection of claims 7, 9, and 32 should be withdrawn.

Claims 8 and 31 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Sato/Lemelson/Hirayanagi and Sato/Lemelson further in view of Meinel. Applicant traverses.

Claims 8 and 31 depends from claims 1 and 24 respectively and therefore are allowable over the cited portions of Sato/Lemelson/Hirayanagi and Sato/Lemelson for the reasons noted above with respect to claims 7 and 30 respectively, as well as for the features they recite individually.

Even assuming *arguendo* that the cited portions of Sato, Lemelson, Hirayanagi and Meinel are properly combinable (which Applicant does not concede), the cited portions of Meinel do not appear to address all of the deficiencies of the cited portions of Sato/Lemelson/Hirayanagi and Sato/Lemelson. For example, the cited portions of Meinel do not appear to appear to disclose or teach, *inter alia*, the support is associated with a clamping device which is arranged to subject a second side of the patterning device to at least one second force, at least when the support is accelerated, and to dynamically vary the at least one second force during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, as recited in claim 8, nor disclose or teach, *inter alia*, subjecting a second side of the patterning device to at least one second force normal to the direction of the acceleration of the support, at least when the support is accelerated, the at least one second force being dynamic during motion of the patterning device in an automatic fashion depending on a magnitude of motion of the patterning device, as recited in claim 31.

For at least these reasons, the rejection of claims 8 and 31 should be withdrawn.

Claims 16-18, 20-23 and 39 were rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Sato in view of Hirayanagi. Applicant traverses.

Claim 16

Applicant submits that the cited portions of Sato and Hirayanagi do not appear to at least disclose or teach a support constructed to support a patterning device which is capable of imparting a radiation beam with a pattern in its cross-section to form a patterned radiation beam comprising wherein, *inter alia*, the support is associated with a clamping device which is releasably attached to a surface of the support extending substantially perpendicularly to the first side of the patterning device and arranged to subject a second side of the patterning device, extending in a plane that is non-coinciding with the first side, to an additional clamping force, at least when the support is accelerated, as recited in claim 16.

Applicant submits, as acknowledged in the Office Action, that the cited portions of Sato fail to disclose or teach the support is associated with a clamping device which is releasably attached to the support and arranged to subject a second side of the patterning device, extending in a plane that is non-coinciding with the first side, to an additional clamping force, at least when the support is accelerated.

Even assuming *arguendo* that the cited portions of Sato and Hirayanagi are properly combinable (which Applicant does not concede), the cited portions of Hirayanagi do not appear to address all of the deficiencies of the cited portions of Sato. In particular, the cited portions of Hirayanagi do not appear to disclose or teach, *inter alia*, the support is associated with a clamping device which is releasably attached to the support and arranged to subject a second side of the patterning device, extending in a plane that is

non-coinciding with the first side, to an additional clamping force, at least when the support is accelerated, as recited in claim 16.

For example, the Office Action refers to clamps 45 of Hirayanagi. However, there is no indication that they are releasably attached to lower portion 40b. Rather, they may be pivotable like the clamp of Sato.

Further, Hirayanagi appears to teach away. In particular, Hirayanagi appears to indicate that one should use the clamps 45 in the circumstance where the mask cannot be held via its bottom surface. See, e.g., Hirayanagi, col. 4, lines 38-42 (discussing, in relation to Figure 1, a mask that cannot be held by electrostatic attraction via its bottom surface) and col. 4, lines 56-65 (discussing a solution involving clamping the mask from the top side). Thus, Hirayanagi would teach away a support to subject a first side of the patterning device to a clamping force, and a clamping device to subject a second side of the patterning device, extending in a plane that is non-coinciding with the first side, to an additional clamping force. To Hirayanagi, it is one or the other – a clamping force on a first side or a clamping force on another side.

Further, neither the cited portions of Hirayanagi nor any of the other arguments in the Office Action disclose, address or otherwise render obvious a clamping device which is releasably attached to a surface of the recited support, the surface extending substantially perpendicularly to the first side of the patterning device.

Claim 39

Applicant submits that the cited portions of Sato and Hirayanagi do not appear to at least disclose or teach a method comprising, *inter alia*, releasably attaching a clamping device to a surface of the support extending substantially perpendicularly to the first side of the patterning device; subjecting the first side of the patterning device to at least one first force

normal to the direction of the acceleration so that an acceleration of the patterning device with respect to the support is suppressed by frictional forces occurring at a contact area between the patterning device and the support; and subjecting the second side of the patterning device to at least one second force normal to the direction of the acceleration of the support, at least when the support is accelerated, using the clamping device, as recited in claim 39.

Applicant submits, as acknowledged in the Office Action, that the cited portions of Sato fail to disclose or teach releasably attaching a clamping device to the support.

Even assuming *arguendo* that the cited portions of Sato and Hirayanagi are properly combinable (which Applicant does not concede), the cited portions of Hirayanagi do not appear to address all of the deficiencies of the cited portions of Sato. In particular, the cited portions of Hirayanagi do not appear to disclose or teach, *inter alia*, releasably attaching a clamping device to the support, as recited in claim 39.

For example, the Office Action refers to clamps 45 of Hirayanagi. However, there is no indication that they are releasably attached to lower portion 40b. Rather, they may be pivotable like the clamp of Sato.

Further, Hirayanagi appears to teach away. In particular, Hirayanagi appears to indicate that one should use the clamps 45 in the circumstance where the mask cannot be held via its bottom surface. See, e.g., Hirayanagi, col. 4, lines 38-42 (discussing, in relation to Figure 1, a mask that cannot be held by electrostatic attraction via its bottom surface) and col. 4, lines 56-65 (discussing a solution involving clamping the mask from the top side). Thus, Hirayanagi would teach away from subjecting the first side of the patterning device to at least one first force, and subjecting the second side of the patterning device to at least one second force. To Hirayanagi, it is one or the other – a clamping force on a first side or a clamping force on another side.

Further, neither the cited portions of Hirayanagi nor any of the other arguments in the Office Action disclose, address or otherwise render obvious releasably attaching a clamping device to a surface of the recited support, the surface extending substantially perpendicularly to the first side of the patterning device.

For at least these reasons, the rejection of claims 16 and 39 should be withdrawn. Claims 17, 18, and 20-23 depend from claim 16 and therefore are allowable over the cited portions of Sato and Hirayanagi for the reasons noted above with respect to claim 16, as well as for the features they recite individually.

Claim 19 was rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Sato and Hirayanagi and further in view of Meinel. Applicant traverses.

Claim 19 depends from claim 18 and therefore is allowable over the cited portions of Sato and Hirayanagi for the reasons noted above with respect to claim 18, as well as for the features it recites.

Even assuming *arguendo* that the cited portions of Sato, Hirayanagi, and Meinel are properly combinable (which Applicant does not concede), the cited portions of Meinel do not appear to address all of the deficiencies of the cited portions of Sato and Hirayanagi. For example, the cited portions of Meinel do not appear to disclose or teach, *inter alia*, the support is associated with a clamping device which is releasably attached to a surface of the support extending substantially perpendicularly to the first side of the patterning device and arranged to subject a second side of the patterning device, extending in a plane that is non-coinciding with the first side, to an additional clamping force, at least when the support is accelerated, as recited in claim 19.

For at least these reasons, the rejection of claim 19 should be withdrawn.

Conclusion

Having addressed each of the foregoing rejections, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

If an extension of time is necessary to prevent abandonment of this application, then such an extension of time is hereby petitioned for under 37 C.F.R. §1.136(a). Any fees required (including fees for net addition of claims) are hereby authorized to be charged to our Deposit Account No. 033975 (Ref. No. **81468-0324818**).

Date: January 29, 2010

Respectfully submitted,

By: _____

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